

US Tech Test Report:  
FCC ID:  
Test Report Number:  
Issue Date:  
Customer:  
Model:

FCC Part 15 Certification  
2AB5RSEN421  
23-0081  
June 19, 2023  
SwipeSense, Inc.  
Sidecar

## Antenna Test Report

Inverted F Trace Antenna

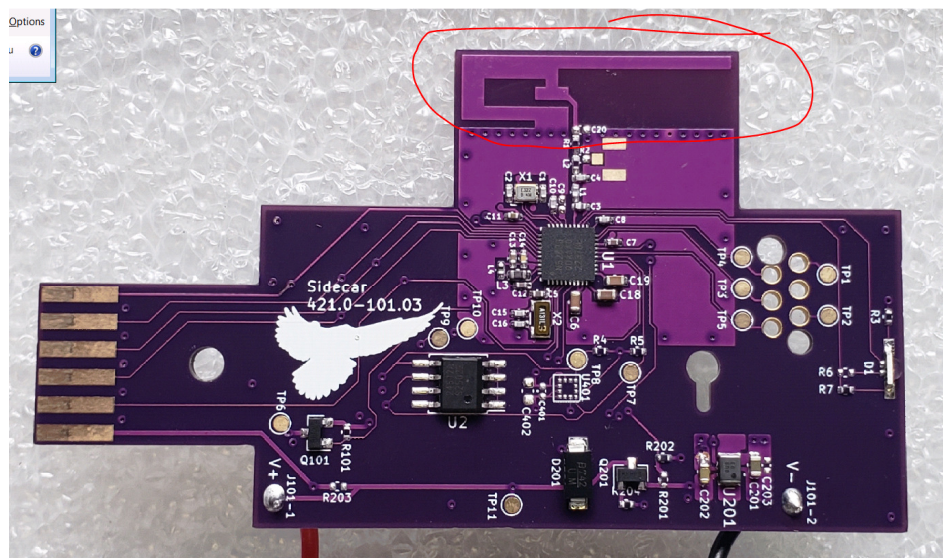


Figure 1. EUT antenna design

Table 1. Measured Field Strength from Test Report

| Test: FCC Part 15,247(d), Test Distance= 3 m |                  |                   |                 |                            |                 |                         |             |          |
|----------------------------------------------|------------------|-------------------|-----------------|----------------------------|-----------------|-------------------------|-------------|----------|
| Frequency (MHz)                              | Test Data (dBuV) | Additional Factor | AF+CL-PA (dB/m) | Corrected Results (dBuV/m) | Limits (dBuV/m) | Distance / Polarization | Margin (dB) | Detector |
| Low Channel - PEAK                           |                  |                   |                 |                            |                 |                         |             |          |
| 2402.00                                      | 67.74            | 0.00              | 32.35           | 100.09                     | --              | 3.0m./HORZ              | --          | PK       |
| Mid Channel – PEAK                           |                  |                   |                 |                            |                 |                         |             |          |
| 2442.00                                      | 69.13            | 0.00              | 32.55           | 101.68                     | --              | 3.0m./VERT              | --          | PK       |
| High Channel– PEAK                           |                  |                   |                 |                            |                 |                         |             |          |
| 2480.00                                      | 67.06            | 0.00              | 32.81           | 99.87                      | --              | 3.0m./VERT              | --          | PK       |

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Antenna gain calculated using the following equations to convert the measured field strength value to V/m.

$$\text{dBuV/m to V/m} = 10^{\frac{[\text{dBuV/m}] - 120}{20}}$$

**Table 2. Converted Fundamental to V/m**

| Frequency of Fundamental (MHz) | V/m   |  |
|--------------------------------|-------|--|
| 2402                           | 0.101 |  |
| 2442                           | 0.121 |  |
| 2480                           | 0.099 |  |

**Table 3. Measured Conducted Output Power from Test Report**

| Frequency of Fundamental (MHz) | Raw Test Data dBm | Converted Data (mW) |
|--------------------------------|-------------------|---------------------|
| 2402                           | -1.19             | 0.75                |
| 2442                           | -0.47             | 0.89                |
| 2480                           | 0.17              | 1.03                |

Gain numeric = (Meters \* V/m)<sup>2</sup>/(30\*Watts)

Watts = measured conducted output power from Table 3 above.

Gain numeric to Gain dBi = 10<sup>^(Gain numeric/10)</sup>

**Table 4. Antenna Gain**

| Frequency of Fundamental (MHz) | Gain Numeric | Gain dBi | Peak Antenna Gain dBi |
|--------------------------------|--------------|----------|-----------------------|
| 2402                           | 0.404        | 1.09     | 1.12                  |
| 2442                           | 0.494        | 1.12     |                       |
| 2480                           | 0.284        | 1.06     |                       |